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Part I : Smoking History in Families with Low and High Cancer Incidences.
Part II: Aryl Hydrocarbon Hydroxylase (AHH): Cancer Genetics.

The aggregation of lung cancer, either site-specific, or in association with cancers of other anatomic sites in families, will be utilized for elucidation of genetic and/or familial factors producing high and low cancer risks. Multiple etiologic factors including cigarette smoking will be studied in context with family history. In addition, aryl hydrocarbon hydroxylase (AHH) will be evaluated in selected high and low cancer risk patients from these kindreds.

Intensive tumor and genealogic documentation will permit critical appraisal of the significance of AHH findings. Inducibility of AHH will be measured in lymphoblasts from patients from low and high risk cancer-prone families in order to determine familial patterns of AHH induction susceptibilities (low, medium and high). Possible association between cancer risk and the inducibility of AHH will be correlated with specific histologic varieties of cancer, their genetic modes of transmission and interaction with cigarette smoking.

The investigators intend to increase their population pool of lung cancer-prone families through contact with cancer institutes and local physicians, and through use of letters indicating their interest in these families to be published in State Medical Journals from seven neighboring Midwestern states. This will provide them with a sizable clinical pool so that specific cancer-prone genotypes might be more readily identified and subjected to critical evaluation by their standard medical genetic protocol, as well as through specialized laboratory studies including AHH.

Activation Date: May 1, 1974

Current Grant Level: Part I : $30,360.
Part II: $29,267.